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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/532,720	04/27/2005	Mamoru Uchida	03500.017759	8745

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FITZPATRICK CELLA HARPER & SCINTO  
30 ROCKEFELLER PLAZA  
NEW YORK, NY 10112

EXAMINER
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RAHLL, JERRY T

ART UNIT	PAPER NUMBER
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2874

MAIL DATE	DELIVERY MODE
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10/09/2007

PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

## Office Action Summary

Application No.

10/532,720

Applicant(s)

UCHIDA, MAMORU

Examiner

Jerry T. Rahl

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2874

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 13 September 2007.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-4 and 6 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-4 and 6 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 06 October 2006 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_\_

## DETAILED ACTION

### *Continued Examination Under 37 CFR 1.114*

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on September 13, 2007 has been entered.

### *Priority*

2. Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

### *Claim Rejections - 35 USC § 103*

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. **Claims 1, 2, and 4 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 6,453,083 to Husain et al. in view of U.S. Patent No. 6,768,572 to Romanovsky.**

5. Regarding Claim 1, Husain et al. describes a circuit board (see Figure 10A) including a plurality of I/O devices (Input and Output Fibers) connected to an optical transmission medium (air between described optical components), and a reconfigurable integrated circuit (made of the MEMS micromirrors) connected to the plurality of I/O devices and a plurality of electronic

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devices (photodetectors of 1005, 1020, 1010), where the reconfigurable circuit changes a route of connection by selecting an optical path from a plurality of optical paths among the plurality of electronic devices and the optical I/O devices (see Columns 9-11). Husain et al. does not specifically describe a mediating device for transmitting a signal such that the circuit changes the route based on the signal. However, because the mirrors of Husain et al are described as controllable to change a route of connection (see Columns 9-11), a mediating device must inherently exist in the device of Husain et al. to cause such a controllable change. Husain et al. does not describe the circuit board having a sheet-shaped transmission medium. Romanovsky describes a circuit board with a sheet-shaped optical transmission medium (116), a plurality of optical I/O devices (106, 112), and a reconfigurable integrated circuit (made of switches 110) connected to the I/O devices. At the time of the invention, it would have been obvious to one of ordinary skill in the art to replace the open-air circuit structure of Husain et al. with the sheet-shaped circuit structure of Romanovsky. The motivation for doing so would have been to reduce unwanted losses from travel through open air (such as losses due to environmental dust).

6. Regarding Claim 2, Husain et al. describes the number of I/O device (Input and Output Fibers) as smaller than the number of electronic devices (photodetectors of 1005, 1010, and 1020).

7. Regarding Claim 4, Husain et al. describes two or more electronic devices connected to a single optical I/O device. For example, In Figure 10A, Husain et al. describes a single Input Fiber connected to photodetectors in arrays 1010 and 1020).

**8. Claim 3 rejected under 35 U.S.C. 103(a) as being unpatentable over Husain et al. and Romanovsky as applied to Claim 1, above, and further in view of U. S. Patent No. 6,6245,345 to Reznichenko.**

9. Husain et al. and Romanovsky describe a circuit board, as discussed above. Husain et al. and Romanovsky do not describe the reconfigurable integrated circuit formed using a field programmable gate array (FPGA). Reznichenko describes a reconfigurable integrated circuit made of optical switches formed using a FPGA (see Column 7 Lines 45-67). At the time of invention, it would have been obvious to one of ordinary skill in the art to use the FPGA control of Reznichenko in the circuit of Husain et al. and Romanovsky. The motivation for doing so would have been to allow for changes in control logic depending on the specific use of the circuit board.

***Allowable Subject Matter***

10. Claim 6 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

11. Claim 6 describes the optical I/O devices as photonic ball integrated circuits. There would have been no motivation to change the optical fiber I/O devices in the prior art of Husain et al. and Romanovsky to a photonic ball IC because such photonic ball IC's would not have been readily integrated to the configuration of the prior-art set up.

***Response to Arguments***

12. Applicant's arguments with respect to claims 1-4 and 6 have been considered but are moot in view of the new ground(s) of rejection.

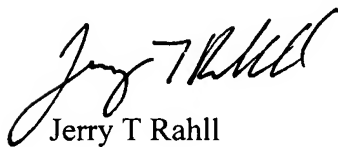
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***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jerry T. Rahll whose telephone number is (571) 272-2356. The examiner can normally be reached on M-F (9:00-5:00).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Rodney Bovernick can be reached on (571) 272-2344. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

  
Jerry T Rahll